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Poster Communication Abstract – PH.18

DYNAMICS OF TRANSMISSION PARAMETERS OF *XYLELLA FASTIDIOSA* SUBSP. *PAUCA* (ST53) BY *PHILAENUS SPUMARIUS* ON OLIVE

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For insect-borne plant pathogens, transmission biology is of major importance in outlining the disease epidemiology. Characteristics and temporal dynamics of acquisition, persistence and transmission of *X. fastidiosa* ST53 by the spittlebug *Philaenus spumarius*, the main vector in Apulia, are not described yet. In this perspective, two sets of experiments were performed in 2017 and 2018 to study i) kinetics of X. fastidiosa multiplication, persistence in and transmission rate by *P. spumarius*; (ii) influence of inoculum time, season, and climatic conditions on *X. fastidiosa* epidemic progression mediated by *P. spumarius* on olive plants under indoor and outdoor conditions. For the kinetics experiments, following the acquisition on field-grown infected olives, insects were serially transferred in groups of five on olive test plants. In simulated epidemic progression experiments, after the acquisition, groups of insects were isolated in cages with 16 olive seedlings for different inoculation periods. Acquisition and transmission rates were assessed by testing individual insects after inoculation and by testing recipient plants 6- and 12-months post-inoculation. Our results suggest that i) the acquisition rate of *Xylella fastidiosa* by the vector in field conditions vary among seasons, ii) *X. fastidiosa* load in foregut increases during the first 2-3 weeks, then becomes stable, iii) transmission efficiency is quite constant during incubation time (i.e. post-acquisition time), but it increases at longer inoculation times iv) survival of insect vectors is influenced by aging, season and climatic conditions, thus affecting the transmission outcome in microcosm experiments, and possibly influencing spread rate of the pathogen in olive population. Quantitative description of transmission parameters of *X. fastidiosa* by *P. spumarius* and their variation through time, season, and climatic conditions can be used to elaborate more accurate epidemiological models of *X. fastidiosa* in Italy and Europe.